

Preliminary program

Antimicrobial resistance in microbial biofilms and options for treatment

Wednesday 5 October 2016

16.30 Introduction & welcome

T. Coenye & F. Van Bambeke

17.00-18.30 Keynote lectures

Chairs: T. Coenye & F. Van Bambeke

17.00 KL1.1 **The role of multidrug efflux in biofilm development and resistance**
M. Webber (UK)

17.45 KL1.2 **Dynamics of mutators in biofilms: role in antibiotic resistance and persistence of chronic infections**
A. Oliver (ES)

Thursday 6 October 2016

08.45-09.30 Keynote lecture

Chair: T. Coenye

08.45 KL2.1 **Pharmacokinetics and pharmacodynamics of antibiotics in *Pseudomonas aeruginosa* biofilm infections**
O. Ciofu (DK)

09.30-11.30 Session S1: *In vitro* and *in vivo* models to study biofilm resistance and treatment - Part I

Chairs: T. Coenye & F. Van Bambeke

S1.1 Pro/con-debate on standardized susceptibility testing

09.30 S1.1a **Pro: Standardized biofilm susceptibility testing is important**
D. Goeres (USA)

09.50 S1.1b **Con: There is no added value in standardized biofilm susceptibility testing**
T. Bjarnsholt (DK)

10.10 S1.1c **Interactive panel debate**

10.30-11.00 Coffee break/free poster viewing

11.00-12.30 Session S1: *In vitro* and *in vivo* models to study biofilm resistance and treatment - Part II

Chairs: T. Coenye & F. Van Bambeke

11.00 S1.2 **PK/PD of antibiotics in *in vitro* models of bacterial biofilms**
F. Van Bambeke (BE)

11.30 A1.1 Effectiveness of colistin-antimicrobial peptides combinations against *Pseudomonas aeruginosa* and *Staphylococcus aureus* single and double-species biofilms (
P. Jorge et al. (PL)

- 11.45 A1.2 Application of modified Robbins Device for antibiotic PK/PD studies on *Pseudomonas aeruginosa* biofilms
W. Hengzhuang et al. (DK)
- 12.00 A1.3 Exploring biofilm formation and virulence of *Propionibacterium acnes* using an artificial sebum model
K.J. Spittaels et al. (BE)
- 12.15 A1.4 Creating a Chronic Wound Model for assessing clinical wound washes and treatments
E. Townsend et al. (UK)

12.30-13.30 Lunch/free poster viewing

13.30-14.30 Poster session P1 (odd numbers) - see posters

14.30-15.30 Poster session P2 (even numbers)- see posters

15.30 – 17.45 Session S2: Molecular mechanisms of biofilm resistance

Chairs: G. Ramage & R.L. Meyer

15.30 S2.1 **Mechanisms of resistance in fungal biofilms**
G. Ramage (UK)

16.00 A2.1 Multifaceted aminoglycoside tolerance in biofilms
T. Tolker-Nielsen et al. (DK)

16.15 A2.2 Antibiotic susceptibility of biofilms is influenced by interspecies interactions in an artificial cystic fibrosis lung microbiome
E. Vandeplassche et al. (BE)

16.30 S2.2 **The role of the biofilm matrix in antimicrobial resistance**
R.L. Meyer (DK)

17.00 A2.3 A sticky framework: extracellular DNA mediates antifungal resistance in fungal biofilms
R. Rajendran et al. (UK)

17.15 A2.4 The stringent response promotes antibiotic resistance dissemination by regulating integron integrase expression in biofilm
S. Da Re et al. (FR)

17.30 A2.5 Susceptibility of *Pseudomonas aeruginosa* dispersed cells to antimicrobial agents is dependent on the class of antimicrobial used
J. Chambers et al. (US)

Friday 7 October 2016

09.00-19.45 Keynote lecture

Chair: T. Coenye

09.45 KL3.1 **Antimicrobial delivery systems to prevent biofilm formation**
D. Eglin (CH)

09.45-10.45 Session S3: Novel approaches to treat biofilm-related infections - part I

Chairs: C. Beloin & K. Braeckmans

- 09.45 S3.1 **Novel pharmacological approaches to combat clinically relevant biofilms**
C. Beloin (FR)
- 10.15 A3.1 Enhanced killing of hypoxic *P. aeruginosa* biofilm by ciprofloxacin with hyperbaric oxygen treatment
M. Kolpen et al. (DK)
- 10.30 A3.2 A topical treatment not based on antibiotics to fight bacterial biofilms
K. Richter et al. (AUS)
- 10.45-11.15 Coffee break/free poster viewing**
- 11.15-12.30 Session S3: Novel approaches to treat biofilm-related infections - part II**
Chairs: C. Beloin & K. Braeckmans
- 10.15 S3.2 **Nanotechnology approaches to tackle biofilms**
K. Braeckmans (BE)
- 10.45 A3.3 Antibiofilm activity of the marine DNase, NucB, in biofilms associated with chronic otitis media with effusion
A.M. Wayes et al. (IQ & UK)
- 11.00 A3.4 Surface-adaptive, antimicrobially loaded, micellar nanocarriers with enhanced penetration and killing efficiency in staphylococcal biofilms
H. Van der Mei et al. (NL)
- 11.15 A3.5 Flavones as novel quorum sensing inhibitors in gram negative bacteria
M. Skogman et al. (FI)
- 12.30-12.40 Closing remarks**
T. Coenye & F. Van Bambeke
- 12.40-13.30 Lunch**

Poster sessions

Posters listed - alphabetically by presenting author

- The microbiome of infected diabetic foot ulcers associated with biofilm
K. Aljohani et al. (AUS)
- No resistance development against antimicrobial peptides immobilized onto a surface
D. Alves et al. (PT)
- Antimicrobial, antibiofilm and antiadherence activities of sodium tetraborate against oral pathogens
T. Baygar et al. (TR)
- Development of a human lung *ex vivo* model of persistent *P. aeruginosa* lung infection using precision-cut lung slices
L. Boge et al. (DE)
- Potential effects of cholinergic agonists in the pathogenesis, biofilm formation and outcome of *Candida albicans* experimental infections
E. Borghi et al. (IT)
- Biofilm formation of *Candida sp.* on medical devices in vitro. Evidenced by scanning electron microscopy

Z. Boucherit-Otmani et al. (DZ)

- Biofilms as independent compartments - Implications for antibiotic treatments
B. Cao et al. (DK)
- Photodynamic inactivation can combat resistant biofilms formed by *Candida* species
L. Černáková et al. (SK)
- Regional prevalence of antibiotic resistant bacteria in river
J.-C. Chae et al. (KR)
- *Candida albicans* and *Candida dubliniensis* biofilms: the impact of surface protein CR3-RP belonging to DING family of proteins
J. Chupáčová et al. (SK)
- Synergistic activity of caspofungin and the plant defensin HsAFP1 or linear derivatives against *Candida albicans* biofilms
T.L. Cools et al. (BE)
- Contamination profile of Brazilian adult, paediatric and neonatal intensive care units surfaces
D.M. Costa et al. (AUS & BR)
- Antimicrobial and antibiofilm activities of biogenic selenium nanoparticles
E. Cremonini et al. (IT)
- Influence of lysine and arginine based surfactants on bacterial biofilm
M. Dawgul et al (PL)
- *In vitro* antibacterial and antibiofilm activities of squalamine and trodusquemine on *Acinetobacter baumannii* multi-drug-resistant strains
E. Dé et al. (FR)
- A small molecule candidate for antibiotic co-therapy in the fight against persistence
V. Defraigne et al. (BE)
- Development of a rapid *in vitro* assay for profiling of biofilm-growing bacteria for clinical applications
E.G. Di Domenico et al. (IT)
- Setting-up an *in-vitro* model of mature biofilm of *Pseudomonas aeruginosa* to evaluate the activity of antibiotics used to treat chronic lung infection in cystic fibrosis patients
Diaz et al. (BE)
- Interference with public good cooperation in biofilms as an evolution-proof antimicrobial strategy
L. Dieltjens et al. (BE)
- Effect of fluconazole and farnesol and their combinations on the *Candida* biofilm
S. Dižová et al. (SI)
- Low *in vitro* activity of five veterinary antimicrobial drugs on *Staphylococcus pseudintermedius* and *Staphylococcus aureus* biofilms
A.A. Ferran et al. (FR)
- A novel quinoline derivative that targets non-dividing bacterial cells is effective against biofilms of *Staphylococcus aureus*, *Staphylococcus epidermidis* and *Pseudomonas aeruginosa*, *in vitro*
C.J. Frapwell et al. (UK)
- Prevention of *Candida* species adhesion and biofilm formation utilising antifungal surface coatings
C. Gilles et al. (AUS)
- Effects of the extracellular matrix and the quorum sensing system of *Pseudomonas aeruginosa* on antimicrobial tolerance in gel cast bacterial aggregates
L. Goltermann et al. (DK)
- Failure of antibiotic treatment in bacterial vaginosis – A metatranscriptome analysis
C. Gottschick et al. (DE)
- The effect of Lugol's solution and boric acid on *Staphylococcus aureus* biofilm
T. Grønseth et al. (NO)
- The importance of *Gardnerella vaginalis* sialidase in bacterial vaginosis-associated biofilm
L. Hardy et al. (BE)

- Biofilm formation and detection of ica AD gene in *Staphylococcus* spp isolated from urinary catheters at the University Hospital of Tlemcen - Algeria
H. Hassaine et al. (DZ)
- Evaluation of biofilm formation of *Klebsiella pneumoniae* isolated from medical devices at the University Hospital of Tlemcen, Algeria
H. Hassaine et al. (DZ)
- Azithromycin and ciprofloxacin: an antibiotic combination unable to eradicate *Pseudomonas aeruginosa* biofilm
G. Horna Quintana et al. (ES)
- Microbial community composition and the spread of antimicrobial resistance and biofilm on the intensive care units
K. Johani et al. (AUS)
- Profiling biofilm-associated diabetic foot infections according to current medical management strategies
K. Johani et al. (AUS)
- Insights into *Pseudomonas aeruginosa* quorum sensing therapeutics through text- and network-mining
P. Jorge et al. (ES)
- Implications of *Candida-Staphylococcus* polymicrobial biofilms in antifungal resistance
R. Kean et al. (UK)
- Optimizing *C. albicans* biofilms on polystyrene plates
P. Kipanga et al. (BE)
- A metabolite-modulated approach to eliminate bacterial biofilm plus antibiotics
H. Li et al. (CN)
- Adaptation of *Pseudomonas fluorescens* to benzyldimethyldodecyl ammonium chloride: implication in biofilm formation and cross-resistance
Machado et al. (PT)
- Evaluation of anti-biofilm efficacy of conventional antibiotics against *Staphylococcus aureus* in two models
S. Manner et al. (SF)
- The new antibiofilm drug, based on the combination of alkylhydroxybenzene compound and azithromycin
S. Mart'yanov et al. (RU)
- Introducing a quantitative assay for the evaluation of volatile anti-biofilm activities of essential oils and their components
L. Mathé et al. (BE)
- Activity of antibiotics in combination with clarithromycin in an *in vitro* model of *Pseudomonas aeruginosa* mature biofilm in the context of lung infection in cystic fibrosis patients
M.H. Mustafa et al. (BE)
- Compositional analysis of polymicrobial biofilms: evaluating the effects of denture cleaning regimens
L. O'Donnell et al. (UK)
- A targeting ligand for drug delivery to *Staphylococcus aureus* biofilms
P. Ommen et al. (DK)
- Clinical outcomes of bacterial vaginosis treatment with metronidazole and post-treatment with surfactant or lactic acid
M. Panz et al. (DE)
- Effects of sub-MICs of tobramycin on growth and biofilm formation by clinical cystic fibrosis paired strains of *Pseudomonas aeruginosa* isolated prior and post-tobramycin treatment
T. Paunova-Krasteva et al. (BG)
- Metabolomics approach for understanding bacterial biofilm

X-x. Peng et al. (CN)

- Exogenous alanine or/and glucose plus kanamycin kills bacterial biofilm
B. Peng et al (CN)
- Au-nanostructured surface exhibits antibacterial properties
Q. Ren et al. (CH)
- The effect members of the cystic fibrosis lung microbiome on the *Pseudomonas aeruginosa*-induced epithelial immune response
C. Rigauts et al. (BE)
- Resistant mutants shield susceptible populations from antibiotic treatment in *P. aeruginosa* biofilms
E. Rojo-Molinero et al. (ES)
- Resistance of *Propionibacterium acnes* biofilms to antibiotics used in acne vulgaris able to be reduced by a *Myrtus communis* extract enriched in myrtucummulones and ursolic acid
C. Roques et al. (FR)
- Use of a new synthetic quorum-sensing inhibitor to impair the *Pseudomonas aeruginosa* biofilm resistance to antibiotics
C. Roques et al. (FR)
- Comparative study of biofilm formation, pigment production, elastase activity, motility and antimicrobial resistance among *Pseudomonas aeruginosa* isolates recovered from different origins
Y. Saenz et al. (ES)
- A dry biofilm model for clinical disinfectant efficacy testing
J. Said et al. (ES)
- A proper size measure for quorum sensing communities
T. Sams et al. (DK)
- *Candida glabrata* biofilms could be the shelter for diplococci against antibacterial agents
S.M.L. Seddiki et al. (CN)
- Evaluation of carbohydrate-derived fulvic acid as an alternative antifungal
L. Sherry et al. (UK)
- Fusidic acid combined with daptomycin is effective against *Staphylococcus aureus* biofilms in an in vitro dynamic model mimicking human exposure
W. Siala et al. (BE)
- Insight into the effect of a quorum sensing inhibitor on *Burkholderia cepacia* complex biofilm susceptibility
L. Slachmuylders et al. (BE)
- Novel nitric oxide donor compounds target and disrupt biofilms formed by clinical *Pseudomonas aeruginosa* isolates from cystic fibrosis patients
O. Soren et al. (UK)
- Changes in the 3D *E. coli* biofilm architecture by lactic acid bacteria
S. Stoitsova et al. (GR)
- Cell-phone fluorometer as a novel quantitative tool kit for monitoring biofilm removal efficiency
R. Sungthong et al. (UK)
- Adaptation of the capacity to form biofilm in *Staphylococcus aureus* isolates during the course of human chronic bone and joint infections
J. Tasse et al. (FR)
- The Antibiofilmogram®: a new antibiotic susceptibility test to determine “biofilm installation” profile useful in prosthetic joint infection
J. Tasse et al. (FR)
- Antimicrobial susceptibility of *Streptococcus anginosus* in a multispecies biofilm
S. Tavernier et al. (BE)
- Laser-induced vapour nanobubbles for improved treatment of biofilm-related infections
E. Teirlinck et al. (BE)

- Efficacy of self-nanoemulsifying drug delivery systems against biofilms
N. Thomas et al. (AUS)
- Photodynamic therapy of bacterial biofilms using infra-red cationic photosensitizers
Tiganova et al. (RU)
- Potential application of boric acid in the prevention and treatment of oral diseases caused by biofilm formation
Ugur et al. (TR)
- Exploring the role of mini-proteins in *Burkholderia cenocepacia* biofilm formation and persistence
H. Van Acker et al. (BE)
- Hamamelitannin analogues potentiate antibiotics in the fight against biofilm-related *Staphylococcus aureus* infections
Vermote et al. (BE)
- Eradication activity of atranol on biofilms of extensively drug-resistant isolates of *Acinetobacter baumannii*
X. Villaneuva et al. (CL)
- Antibiofilm activity of the marine DNase, NucB, in biofilms associated with chronic otitis media with effusion
Wayes et al. (UK)
- Differences between cell responses to various biofilm dispersion methods in *Burkholderia cenocepacia*
J. Wille et al. (BE)
- Dereplication of antifungal drug classes by electrochemical impedance spectroscopy
J. Wuyts et al. (BE)
- Rapid occurrence of ciprofloxacin resistant nfxB mutants in *Pseudomonas aeruginosa* biofilm using a fluorescent reporter for mutagenesis in an experimental evolution model
G. Zaborskyte et al. (DK)
- IgY chicken antibodies against microbial biofilm formation
J. Zajac et al. (DE)
- Differential extracellular DNA (eDNA) production in biofilms of clinical strains of *S. epidermidis* and *S. aureus*
Zatorska et al. (AU)
- Effect of the quorum quenching enzyme MomL on biofilm formation by *Pseudomonas aeruginosa* and *Acinetobacter baumannii*
Y. Zhang et al. (BE)